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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,811

12/06/2004

Richard Syme

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EXAMINER

DOAN, JENNIFER

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/516,811

Applicant(s)

SYMS ET AL.

Examiner

Jennifer Doan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's communication filed on May 1, 2006, has been carefully studied by the Examiner. The arguments advanced therein, considered together with the amendment made to the claims, are persuasive. However, in view of further search, a relevant document is found applicable; therefore, a previous office action is withdrawn and a new rejection is set forth below. This action is **not** made final.

Specification

1. Applicants' cooperation is requested in correcting any errors of which applicants may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 3-9, 12-23, 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Fauver et al. (U.S. 2002/0064341).

With respect to claims 3 and 25, Fauver et al. (figures 9, 11A and 11B) disclose a method and an apparatus of an optical reading device having a light source (laser), a movable optical waveguide (130), an actuator (142), a detector (photodetector), and wherein the actuator and detector are integrally formed in a substrate (silicon substrate) [0072], the movement of the waveguide being effected by action of the actuator thereon [0120], and wherein the detector provides a confocal detection system adapted to effect a detection of light backscattered into cladding of the waveguide (see paragraphs [0056], [0072], [0075], [0081], [0120] and [0134]).

With respect to claim 4, Fauver et al. (see figures 11A and 11B) disclose the optical reading device, wherein the waveguide (130) externally attached or coupled to the device.

With respect to claims 5 and 6, Fauver et al. disclose the optical reading device, wherein the optical waveguide is single-moded and polarization-preserving (see paragraphs [0057] and [0134]).

With respect to claim 7, Fauver et al. disclose the optical reading device, wherein the optical waveguide is positioned on a suspended cantilever above the substrate and wherein the waveguide has a root and is supported only near its root or along its length by a mechanical layer (see paragraphs [0043] and [0075]).

With respect to claims 8 and 9, Fauver et al. disclose the optical reading device, wherein the waveguide is supported by a mechanical layer along its entire length and has a root and supported only near its root by a mechanical layer (see paragraphs [0071] and [0140]).

With respect to claim 12, Fauver et al. disclose the optical reading device, wherein the detector is placed beneath the waveguide to detect cladding modes present in the waveguide (see paragraph [0072]).

With respect to claims 13 and 14, Fauver et al. disclose the optical reading device, wherein the detector is a photodetector and is placed or formed at the tip of the cantilever (see paragraph [0125]). and the photodetector is placed near the root of the cantilever (see paragraph [0084]).

With respect to claim 15, Fauver et al. (figure 20A) disclose the optical reading device, wherein the actuator (354) is placed near the root of the cantilever (see figure 20A).

With respect to claim 16, Fauver et al. disclose the optical reading device, wherein the actuator is constructed as an electrothermal or electrostatic (see paragraph [0135]).

With respect to claim 17, Fauver et al. disclose the optical reading device, wherein the actuator is constructed as an electrothermal shape bimorph actuator (see paragraph [0137]).

With respect to claims 18 and 19, Fauver et al. disclose the optical reading device, wherein the waveguide is placed over a cold arm of the electrothermal shape bimorph and wherein the electrothermal shape bimorph actuator has dual hot arms (see paragraph [0135]).

With respect to claims 20 and 21, Fauver et al. disclose the optical reading device, wherein electrical current in the cold arm is monitored and suppressed using an

active feedback circuit and wherein the motion sensors are placed near the root of the cold arm and the root of the cantilever (see paragraph [0135]. Figures 11A & 11B).

With respect to claim 22, Fauver et al. disclose the optical reading device, wherein the motion sensors are constructed as pairs of piezo-resistors, arranged to detect differential strain caused by bending of the structure and connected to a differential readout circuit (see paragraph [0136] and [0140]).

With respect to claim 23, Fauver et al. (figures 9, 11A-11B and 18) disclose an optical reading system comprising a device having at least one of the following components:

- a) a cantilevered single-mode optical waveguide (130) suitable for transmitting light onto a target thereby illuminating the target and adapted to effect a reception of the back-scattered signal from the target into the cladding of the waveguide, the optical waveguide being formed as an integrated channel guide formed in dielectric materials and surrounding by a cladding of restricted lateral dimensions (see paragraphs [0056], [0057], [0072], [0075], [0081], [0120], [0134]),
- b) an actuator (142) capable of achieving large in-plane displacement,
- c) motion sensors capable of providing the necessary signals for closed loop control of the scan amplitude (see paragraph [0071]),
- d) a cladding mode detector capable of implementing a confocal detection system so as to effect a detection of the light backscattered into the cladding of the waveguide,
- e) a lens (266), which may be formed in the wall of the device package (250), the device being coupled to a laser source (254), which may be hybridised or integrally formed with

the device of the present invention or linked thereto by a section of optical fibre so as to provide the incident light to the waveguide (see paragraph [0077]).

With respect to claim 26, Fauver et al. disclose the system, further including at least one motion sensor such that any moving of the waveguide is detectable by the motion sensors (see paragraph [0071]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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6. Claims 10, 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fauver et al. (as cited above).

With respect to claims 10, 11 and 24, Fauver et al. substantially the optical transmission article except the actuator and detector are formed in a silicon based layer as a p-n or p-I-n junction photodiode.

However, the component constituting the silicon based layer is considered to be obvious. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to integrate the actuator and detector of Fauver's device on the based layer with material as claimed for the purpose of obtaining higher efficiency of optical signal transmission. It is also noted that it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Response to Arguments

7. Applicant's arguments with respect to claims 3-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-

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2346. The examiner can normally be reached on Monday to Thursday from 6:00 am to 3:30 pm, second Friday off.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JD

July 21, 2006


JENNIFER DOAN
PRIMARY EXAMINER